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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
GORDON, BRIAN R	

ART UNIT	PAPER NUMBER
1743	

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/783,232	KISHKOVICH ET AL.	
	Examiner	Art Unit	
	Brian R. Gordon	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see remarks, filed January 1, 2004, with respect to the rejection(s)of claim(s) 1-5 and 20 under Shinozaki et al. have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Hayes et al. US 6,338,312.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 7 recites the limitation "the scrubbing channels" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is unclear if "the scrubbing channels" are the same as the "pair of channels" as recited in claim 1. If the channels are the same, it is suggested that claim 1 be amended to recite "a pair of scrubbing channels". For the purpose of examination, the examiner has interpreted the both recitations of the channels as being the same.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-4, 6-7, 11, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Hayes et al. US 6,338,312.

Hayes et al. disclose an ion implantation process system, including an ion implanter apparatus for carrying out an ion implantation process. Ion implantation is progressively widely used for the introduction of dopant species into substrates for the manufacturing of semiconductor device structures (the entire apparatus as well as the individual components employed in the implantation process are considered as semiconductor processing tools).

The integrated ion implantation scrubber system 100 comprising an implanter unit control panel and a feed source 102 of source gas for the ion implantation operation, which may comprise a source gas storage and dispensing vessel 104 of a type as hereinafter described in greater detail in FIG. 2 hereof. The source gas storage and dispensing vessel 104 is constructed to be leak-tight and to hold within its interior volume a physical adsorbent material having sorptive affinity for the dopant gas used in the ion implantation. The vessel 104 is joined to a valve head assembly 105 which in turn is coupled to the gas dispensing manifold assembly 106 including line 108, through which the dispensed gas is flowed to the ion implantation apparatus 110 represented schematically in FIG. 1, but of a type as more fully described hereafter in connection with FIG. 3 hereof.

The ion implantation apparatus 110 produces an effluent gas stream which is discharged from the ion implantation apparatus in line 112 and passed to the dry

scrubber bed 114 (first scrubber) for removal therein of contaminant(s) and discharge of a purified effluent gas stream in line 116 to downstream processing or final disposition of same.

Effluent gas from the ion implantation system 110 may also be discharged into a second line 124 and flowed to the scrubber bed 126 for removal of undesired gas stream components therein, to yield a purified gas stream which is discharged from the scrubber bed in line 128 and passed to further treatment or other disposition steps.

The scrubber beds 114 and 126 may be provided in duplicate as shown, with one of the beds being a backup scrubbing unit, and with the lines 112 and 124 containing suitable valving and instrumentation to accommodate such redundancy function, so that one of the beds is initially on-stream and actively scrubbing the effluent gas stream from the ion implantation apparatus 110, while the other is in stand-by mode (purging system/operation).

When a signal indicating breakthrough of contaminant is generated by the end-point detector for the on-stream bed, the effluent gas stream flow is thereupon switched to the stand-by scrubber bed, which then becomes the active processing module while the exhausted scrubber bed is changed out, to replace the scrubber composition therein, or otherwise regenerate the exhausted bed for renewal of active scrubbing operation when the other bed in turn becomes exhausted.

Alternatively, the two scrubber beds 114 and 126 may be concurrently operated, and may each process different effluent streams generated in the operation of the ion implantation apparatus. For example, one of such scrubber beds may process a main

effluent gas stream from the ion implantation apparatus, while the other may for example process a minor effluent stream deriving from pump leakage gas in the effluent treatment system.

The dry scrubbing composition may therefore be provided in canisters which are deployed in the ionimplanter apparatus to treat the effluent gas stream(s) produced by the process and yield an environmentally acceptable discharged stream. Such canisters can be readily changed out by decoupling same from connecting piping and valving employing conventional connector devices, and replacing the canister of spent scrubber medium with a corresponding canister of fresh medium.

Different scrubber materials may be employed, either in discrete bed zones or as components of a blended mixture of scrubbing materials, in which the respective scrubber materials are selective for removal of different waste gas components. For example, one such scrubber material may be highly selective for acid gas components of the effluent gas stream from the ion implanter, and another scrubber material may be highly selective for hydride gas species in the effluent gas stream.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. US 5,199,263 in view of Nickens et al. US 6,267,931 and Hayes et al.

Green et al. discloses a wet scrubber system for flue gas desulfurization for the principle of cleaning of waste gases before discharge into the atmosphere. Figures 4A –4D are isometric views of the flue gas routing in which the combustion gases are flowed though thee separate scrubber towers in parallel configuration. A vent 444 is provided at the top of every tower 440. (This vent can be used for an air purge when a tower is shut down.) Each scrubber tower bypassed via plenums.

FIGS. 4A through 4D are isometric views of the flue gas routing used in the presently preferred embodiment. In the presently preferred embodiment, the combustion gases are flowed through three separate scrubber towers in parallel.

As shown in FIG. 4A, the hot gasses generated in the boiler leave the boiler through outlet 404. At the boiler outlet 404, the exhaust gasses are at about 340.degree. F., and are at a pressure very close to atmospheric. This gas flow is predominantly composed of nitrogen, carbon dioxide, water, and oxygen; but it also contains (when high-sulfur coal is being burned) 0.1% or more of SO_2, and lesser amounts of other noxious species such as SO_3, nitrogen oxides, and HCl.

In the presently preferred embodiment, about 2.5 million cubic feet per minute of exhaust gas flow out of the boiler 100. Of this amount, about 500,000-550,000 cubic feet per minute are flowed through each of the three scrubber towers, and the rest is routed directly to the stack.

Green et al. does not state specifically that the device comprises a control system; however it is obvious that the device comprises some means of control for it is recited the pump and other elements are under the control of an operator.

Nickens et al. discloses a waste treatment system in which scrubbing units are employed for the purpose of neutralizing or treating hazardous gases. The device further comprises a remote room provided with a control panel for controlling the connecting inputs and outputs.

At any point in the flow path of the waste product, the waste may be routed through manifold 2 to receiving system 70. Preferably, the waste would be directed to one of the holding vessels 40 (optimally with the assistance of pump 8) to enable a system operator to analyze a sample of the waste via sample port 9.

As best seen in FIG. 3, according to this feature, a remote room 19 is preferably located within the trailer 18. Remote room 19 is preferably exterior to, and may be adjacent to, airtight enclosure 5. Room 19 is preferably provided with a control panel 191 which may be capable of selectively and remotely connecting inputs and outputs 50,60 of distribution manifold 2. These connections may be achieved by any appropriate method, such as providing flexible connectors 51 with quick-disconnect-type fittings and providing hydraulic, electronically-actuated controls to receive electronic signals from control panel 191. These signals would preferably cause the hydraulic controls to connect and disconnect the fittings of connectors 51 as desired. Alternately, connectors 51 could all be pre-connected through a system of electronically-actuated valves

controlled by remote panel 191. In this embodiment, the valves could be opened or closed in the appropriate sequence to achieve the desired flow path.

The remote room 19 is preferably provided with remote viewing devices, such as closed-circuit monitors or T.V.s 193 linked to remote cameras 194 which are preferably positioned within enclosure 5. This feature allows remote viewing of the interior of enclosure 5 to provide added safety to the operation of system 1. Further, remote room 19 preferably houses a sampling panel 195, which is operatively linked to a remote valve actuation mechanism 196 positioned within enclosure 5. Mechanism 196 preferably permits a waste cylinder to be remotely sampled and identified. Mechanism 196 may also be used to provide remote actuation of cylinder valves when the contents of the waste cylinders are believed to be unstable or explosive or otherwise dangerous.

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the device of Greene et al. by incorporating the remote room of Nickens in order to allow for the remote control of the system as well as allow for remote viewing of the system via T.V. monitors.

Green et al. US 5,199,263 in view of Nickens et al. US 6,267,931 do not specifically recite that the devices are employed in the semiconductor fabrication industry.

Hayes et al. disclose an ion implantation process system, including an ion implanter apparatus for carrying out an ion implantation process. Ion implantation is progressively widely used for the introduction of dopant species into substrates for the manufacturing of semiconductor device structures (the entire apparatus as well as the

individual components employed in the implantation process are considered as semiconductor processing tools).

It would have been obvious to one of ordinary skill in the art at the time of the invention to recognize that the modified device by be employed to use in combination with a clean room of a semiconductor fabrication facility in order to monitor and control the concentration of contaminants therein.

As to the method claims 3-4, and 12-19, it would have been obvious to one of the ordinary skill in the art at the time of the invention to recognize that the modified device of Greene has the capabilities of performing the claimed method steps.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Raaijmakers, Ivo et al., Ferro, Armand et al., Irie, Kazuyoshi et al., Wagner, Anthony S., Sakai, Itsuko et al., and Shamouilian, Shamouil et al. disclose methods and devices for scrubbing gases.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is 571-272-1258. The examiner can normally be reached on M-F, with 2nd and 4th F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

brg

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